

What is claimed is:

- 1 1. A microelectronic device comprising:
2 a microelectronic die having a plurality of bond pads on an active surface
3 thereof, said microelectronic die being fixed within an opening in a package core; and
4 an interfacial metal layer deposited over said active surface of said
5 microelectronic die, said interfacial metal layer having at least one conductive element
6 that is conductively coupled to multiple bond pads on said active surface of said
7 microelectronic die to provide signal distribution between points within said
8 microelectronic die.
- 1 2. The microelectronic device of claim 1, comprising:
2 at least one build up metallization layer deposited over said interfacial metal
3 layer, said at least one build up metallization layer being conductively coupled to said
4 interfacial metal layer through a dielectric layer having a plurality of via holes.
- 1 3. The microelectronic device of claim 1, wherein:
2 said at least one conductive element includes a first pad that is directly coupled
3 to a first bond pad on said active surface of said microelectronic die, a second pad that
4 is directly coupled to a second bond pad on said active surface of said microelectronic
5 die, and a conductive trace portion connecting said first and second pads.
- 1 4. The microelectronic device of claim 1, wherein:
2 said at least one conductive element receives a signal from a first bond pad on
3 said active surface of said microelectronic die during operation of said microelectronic
4 device and transfers said signal to a second bond pad on said active surface of said
5 microelectronic die.
- 1 5. The microelectronic device of claim 4, wherein:
2 said microelectronic die includes a clock source for providing a clock signal to
3 a first bond pad on said active surface, wherein said interfacial metal layer includes a

09845881-043001

4 conductive element that is conductively coupled to said first bond pad and to a
5 plurality of other bond pads on said active surface to distribute said clock signal to said
6 plurality of other bond pads.

1 6. The microelectronic device of claim 1, wherein:
2 said package core is formed from a metal material.

1 7. The microelectronic device of claim 1, wherein:
2 said interfacial metal layer is deposited on a passivation layer of said
3 microelectronic die.

1 8. The microelectronic device of claim 1, comprising:
2 a second microelectronic die fixed within said package core, wherein said
3 interfacial metal layer includes at least one conductive element that is conductively
4 coupled to both a first bond pad on said active surface of said first microelectronic die
5 and a second bond pad on an active surface of said second microelectronic die.

1 9. The microelectronic device of claim 1, wherein:
2 said microelectronic die is fixed within said opening in said package core using
3 an encapsulation material.

1 10. A microelectronic device comprising:
2 at least one microelectronic die having a plurality of bond pads on an active
3 surface thereof and a passivation layer covering said active surface, said passivation
4 layer having a plurality of openings in locations corresponding to said plurality of bond
5 pads, said at least one microelectronic die being fixed within a package core; and
6 an interfacial metal layer over said passivation layer, said interfacial metal layer
7 having a plurality of separate conductive elements including at least one conductive
8 element that is conductively coupled to multiple bond pads on said at least one
9 microelectronic die through corresponding openings in said passivation layer.

1 11. The microelectronic device of claim 10, wherein:
2 said at least one conductive element on said interfacial layer receives a signal
3 from a first of said multiple bond pads during operation of said microelectronic device
4 and distributes said signal to each other of said multiple bond pads.

1 12. The microelectronic device of claim 10, wherein:
2 said at least one conductive element on said interfacial layer is conductively
3 coupled to a first external contact of said microelectronic device through said
4 metallization layer.

1 13. The microelectronic device of claim 12, wherein:
2 said at least one conductive element on said interfacial layer receives a signal
3 from said first external contact during operation of said microelectronic device and
4 distributes said signal to said multiple bond pads in response thereto.

1 14. The microelectronic device of claim 10, wherein:
2 said at least one microelectronic die includes a first microelectronic die and a
3 second microelectronic die, wherein said at least one conductive element on said
4 interfacial layer is conductively coupled to both a first bond pad on said first
5 microelectronic die and a second bond pad on said second microelectronic die.

1 15. The microelectronic device of claim 14, wherein:
2 said at least one conductive element on said interfacial layer receives a signal
3 from said first bond pad on said first microelectronic die during operation of said
4 microelectronic device and delivers said signal to said second bond pad on said second
5 microelectronic die.

1 16. The microelectronic device of claim 10, wherein:
2 said interfacial metal layer includes a first portion overlapping said at least one
3 microelectronic die and a second portion overlapping said package core.

1 17. The microelectronic device of claim 10, comprising:
 2 a dielectric layer deposited on said interfacial metal layer, said dielectric layer
 3 having a plurality of via holes in locations corresponding to selected conductive
 4 elements on said interfacial metal layer.

1 18. The microelectronic device of claim 17, comprising:
 2 a metallization layer deposited on said dielectric layer, said metallization layer
 3 having conductive elements that are conductively coupled to said selected conductive
 4 elements of said interfacial metal layer through said plurality of via holes in said
 5 dielectric layer.

1 19. The microelectronic device of claim 18, wherein:
 2 said metallization layer includes a first portion overlapping said at least one
 3 microelectronic die and a second portion overlapping said package core.

1 20. A microelectronic device comprising:
 2 a package core;
 3 a first microelectronic die fixed within said package core, said first
 4 microelectronic die having bond pads on an active surface thereof;
 5 a second microelectronic die fixed within said package core, said second
 6 microelectronic die having bond pads on an active surface thereof; and
 7 an interfacial metal layer deposited over said first and second microelectronic
 8 dice, said interfacial metal layer having a first conductive element that is conductively
 9 coupled to both a first bond pad on said first microelectronic die and a second bond pad
 10 on said second microelectronic die.

1 21. The microelectronic device of claim 20, wherein:
 2 said first conductive element is conductively coupled to multiple bond pads on
 3 said second microelectronic device.

1 22. The microelectronic device of claim 20, wherein:
 2 said first conductive element has a first portion on a passivation layer of said
 3 first microelectronic die and a second portion on a passivation layer of said second
 4 microelectronic die.

1 23. The microelectronic device of claim 20, wherein:
 2 said first and second microelectronic dice are fixed within a common opening
 3 in said package core.

1 24. The microelectronic device of claim 20, wherein:
 2 said first and second microelectronic dice are each fixed within a separate
 3 opening in said package core.

1 25. The microelectronic device of claim 20, wherein:
 2 said first and second microelectronic dice are fixed within said package core
 3 using an encapsulation material.

1 26. The microelectronic device of claim 20, wherein:
 2 said first microelectronic die includes a signal source to provide a signal to said
 3 first bond pad during operation of said microelectronic device, wherein said first
 4 conductive element of said interfacial metal layer transfers said signal from said first
 5 bond pad to said second bond pad.